Smart Skies			
2006 Science			
Grade Level and Grade Span Expectations			
New Hampshire Science			
Grades 5-6			
Activity/Lesson	**State**	**Standards**	
Fly by Math	NH	SCI.5-6.S:PS2:6:3.3	Recognize that energy, in the form of heat, is usually a by-product when one form of energy is changed to another, such as when machines convert stored energy to motion.
Fly by Math	NH	SCI.5-6.S:PS3:6:1.2	Explain that when a force is applied to an object, it reacts in one of three ways: the object either speeds up, slows down, or goes in a different direction.
Fly by Math	NH	SCI.5-6.S:PS3:6:1.3	Describe the relationship between the strength of a force on an object and the resulting effect, such as the greater the force, the greater the change in motion.
Fly by Math	NH	SCI.5-6.S:PS3:6:2.1	Explain the how balanced and unbalanced forces are related to an object’s motion.
Fly by Math	NH	SCI.5-6.S:PS3:6:2.2	Explain that an object's motion can be tracked and measured over time and that the data can be used to describe its position.
Fly by Math	NH	SCI.5-6.S:SPS1:6:2.2	Identify and utilize appropriate tools/technology for collecting data in designing investigations.
Fly by Math	NH	SCI.5-6.S:SPS1:6:3.2	Use appropriate tools to collect and record data.
Fly by Math	NH	SCI.5-6.S:SPS1:6:4.1	Use appropriate tools to organize, represent, analyze and explain data.
Fly by Math	NH	SCI.5-6.S:SPS1:6:4.3	Compare and display data in a variety of student or computer generated formats (such as diagrams, flow charts, tables, bar graphs, line graphs, scatter plots, and histograms).
Fly by Math	NH	SCI.5-6.S:SPS4:8:1.2	Collect real-time observations and data, synthesizing and building upon existing information (e.g., online databases, NOAA, EPA, USGS) to solve problems.
Fly by Math	NH	SCI.5-6.S:SPS4:8:1.3	Use appropriate tools to analyze and synthesize information (e.g., diagrams, flow charts, frequency tables, bar graphs, line graphs, stem-and-leaf plots) to draw conclusions and implications based on investigations of an issue or question.
Fly by Math	NH	SCI.5-6.S:SPS4:8:4.2	Use evidence collected from observations or other sources and use them to create models and explanations.
Fly by Math	NH	SCI.5-6.S:SPS4:8:8.1	Develop and execute a plan to collect and record accurate and complete data from various sources to solve a problem or answer a question; and gather and critically analyze data from a variety of sources.

Line Up with Math	NH	SCI.5-6.S:PS2:6:3.3	Recognize that energy, in the form of heat, is usually a by-product when one form of energy is changed to another, such as when machines convert stored energy to motion.
Line Up with Math	NH	SCI.5-6.S:PS3:6:1.2	Explain that when a force is applied to an object, it reacts in one of three ways: the object either speeds up, slows down, or goes in a different direction.
Line Up with Math	NH	SCI.5-6.S:PS3:6:2.2	Explain that an object's motion can be tracked and measured over time and that the data can be used to describe its position.
Smart Skies			
2006 Science			
Grade Level and Grade Span Expectations			
New Hampshire Science			
Grades 7-8			
Activity/Lesson	**State**	**Standards**	
Fly by Math	NH	SCI.7-8.S:ESS4:8:1.2	Recognize the importance of technology as it relates to science, for purposes such as: access to space and other remote locations, sample collection and treatment, measurement, data collection, and storage, computation, and communication of information.
Fly by Math	NH	SCI.7-8.S:ESS4:8:2.3	Describe how man uses land-based light telescopes, radio telescopes, satellites, manned exploration, probes and robots to collect data.
Fly by Math	NH	SCI.7-8.S:PS2:8:2.2	Collect data or use data provided to infer or predict that the total amount of mass in a closed system stays the same, regardless of how substances interact (conservation of matter).
Fly by Math	NH	SCI.7-8.S:PS3:8:1.3	Use data to determine or predict the overall (net) effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects.
Fly by Math	NH	SCI.7-8.S:PS3:8:2.1	Explain that an object in motion that is unaffected by a force will continue to move at a constant speed and in a straight line.
Fly by Math	NH	SCI.7-8.S:PS3:8:2.2	Explain how the motion of an object can be described by its position, direction of motion, and speed; and illustrate how that motion can be measured and represented graphically.
Fly by Math	NH	SCI.7-8.S:SPS1:8:1.1	Use appropriate tools to accurately collect and record both qualitative and quantitative data gathered through observations (e.g., temperature probes, electronic balances, spring scales, microscopes, stop watches).
Fly by Math	NH	SCI.7-8.S:SPS1:8:3.2	Use appropriate tools to gather data as part of an investigation (e.g., ruler, meter stick, thermometer, spring scale, graduated cylinder, calipers, balance, probes, microscopes).

Fly by Math	NH	SCI.7-8.S:SPS1:8:4.1	Use appropriate tools (including computer hardware and software) to collect, organize, represent, analyze and explain data.
Fly by Math	NH	SCI.7-8.S:SPS1:8:4.3	Draw appropriate conclusions regarding the scientific question under investigation, based on the data collected.
Fly by Math	NH	SCI.7-8.S:SPS2:8:1.1	Describe how scientific investigations usually involve the collection of relevant evidence, the use of logical reasoning, and the application of imagination in devising hypotheses and explanations to make sense of the collected evidence.
Fly by Math	NH	SCI.7-8.S:SPS3:8:2.2	Judge the weaknesses and strengths of the information they are using.
Fly by Math	NH	SCI.7-8.S:SPS4:8:1.2	Collect real-time observations and data, synthesizing and building upon existing information (e.g., online databases, NOAA, EPA, USGS) to solve problems.
Fly by Math	NH	SCI.7-8.S:SPS4:8:1.3	Use appropriate tools to analyze and synthesize information (e.g., diagrams, flow charts, frequency tables, bar graphs, line graphs, stem-and-leaf plots) to draw conclusions and implications based on investigations of an issue or question.
Fly by Math	NH	SCI.7-8.S:SPS4:8:8.1	Develop and execute a plan to collect and record accurate and complete data from various sources to solve a problem or answer a question; and gather and critically analyze data from a variety of sources.
Fly by Math	NH	SCI.7-8.S:PS1:8:1.6	Collect data or use data provided to infer or predict that the total amount of mass in a closed system stays the same, regardless of how substances interact (conservation of matter).
Line Up with Math	NH	SCI.7-8.S:PS3:8:1.3	Use data to determine or predict the overall (net) effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects.
Line Up with Math	NH	SCI.7-8.S:PS3:8:2.1	Explain that an object in motion that is unaffected by a force will continue to move at a constant speed and in a straight line.
Line Up with Math	NH	SCI.7-8.S:PS3:8:2.2	Explain how the motion of an object can be described by its position, direction of motion, and speed; and illustrate how that motion can be measured and represented graphically.
Smart Skies			
2006 Science			
Grade Level and Grade Span Expectations			
New Hampshire Science			
Grades 9-11			
Activity/Lesson	**State**	**Standards**	

Fly by Math	NH	SCI.9-11.S:LS3:11:3.4	Analyze present day data and research in areas, including antibiotic resistance in bacteria, changes in viral genomes, such as bird flu, and DNA sequencing; and relate it to the concepts of natural selection.
Fly by Math	NH	SCI.9-11.S:PS3:11:1.2	Recognize that the strength of the electric force between two charged objects is proportional to the charges and, as with gravitation, is inversely proportional to the square of the distance between them.
Fly by Math	NH	SCI.9-11.S:PS3:11:1.3	Recognize that the strength of the gravitational force between two masses is proportional to the masses and inversely proportional to the square of the distance between them.
Fly by Math	NH	SCI.9-11.S:PS3:11:1.4	Compare the strength of nuclear, electromagnetic and gravitational forces; and explain that the strength of nuclear forces account for the great amounts of energy released from the nuclear reactions in atomic or hydrogen bombs, and in the Sun and other stars.
Fly by Math	NH	SCI.9-11.S:PS3:11:1.8	Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, and acceleration to predict and explain the motion of objects.
Fly by Math	NH	SCI.9-11.S:PS3:11:2.1	Interpret and apply the laws of motion to determine the effects of forces on the motion of objects.
Fly by Math	NH	SCI.9-11.S:PS3:11:2.3	Apply the concepts of inertia, motion, and momentum to predict and explain situations involving forces and motion, including stationary objects and collisions.
Fly by Math	NH	SCI.9-11.S:SPS1:11:3.2	Use instruments effectively and accurately for collecting data.
Fly by Math	NH	SCI.9-11.S:SPS1:11:3.3	Compile and organize data, using appropriate units.
Fly by Math	NH	SCI.9-11.S:SPS1:11:4.1	Compile and display data, evidence and information by hand and computer, in a variety of formats, including diagrams, flow charts, tables, graphs and scatter plots.
Fly by Math	NH	SCI.9-11.S:SPS2:11:1.4	Show how hypotheses are widely used in science for choosing what data to pay attention to and what additional data to seek, and for guiding the interpretation of the data (both new and previously available).
Fly by Math	NH	SCI.9-11.S:SPS3:11:2.3	Locate and collect reliable information for environmental investigations of many types.

Fly by Math	NH	SCI.9-11.S:SPS4:12:1.1	Select and analyze information from various sources (including electronic resources, print resources, community resources) and personally collected data to answer questions being investigated.
Fly by Math	NH	SCI.9-11.S:SPS4:12:1.2	Collect and use qualitative and quantitative data and information, seek evidence and sources of information to identify flaws such as errors and bias, and explain how the evidence supports or refutes an initial hypothesis.
Fly by Math	NH	SCI.9-11.S:SPS4:12:1.3	Analyze data and information gathered to clarify problems or issues identifying costs and benefits from a social, cultural, and/or environmental perspective; predict the consequences of action or inaction; and propose possible solutions.
Fly by Math	NH	SCI.9-11.S:SPS4:12:4.2	Plan and conduct practical tests to solve problems or answer a question, collect and analyze data using appropriate instruments and techniques safely and accurately.
Line Up with Math	NH	SCI.9-11.S:PS3:11:2.3	Apply the concepts of inertia, motion, and momentum to predict and explain situations involving forces and motion, including stationary objects and collisions.